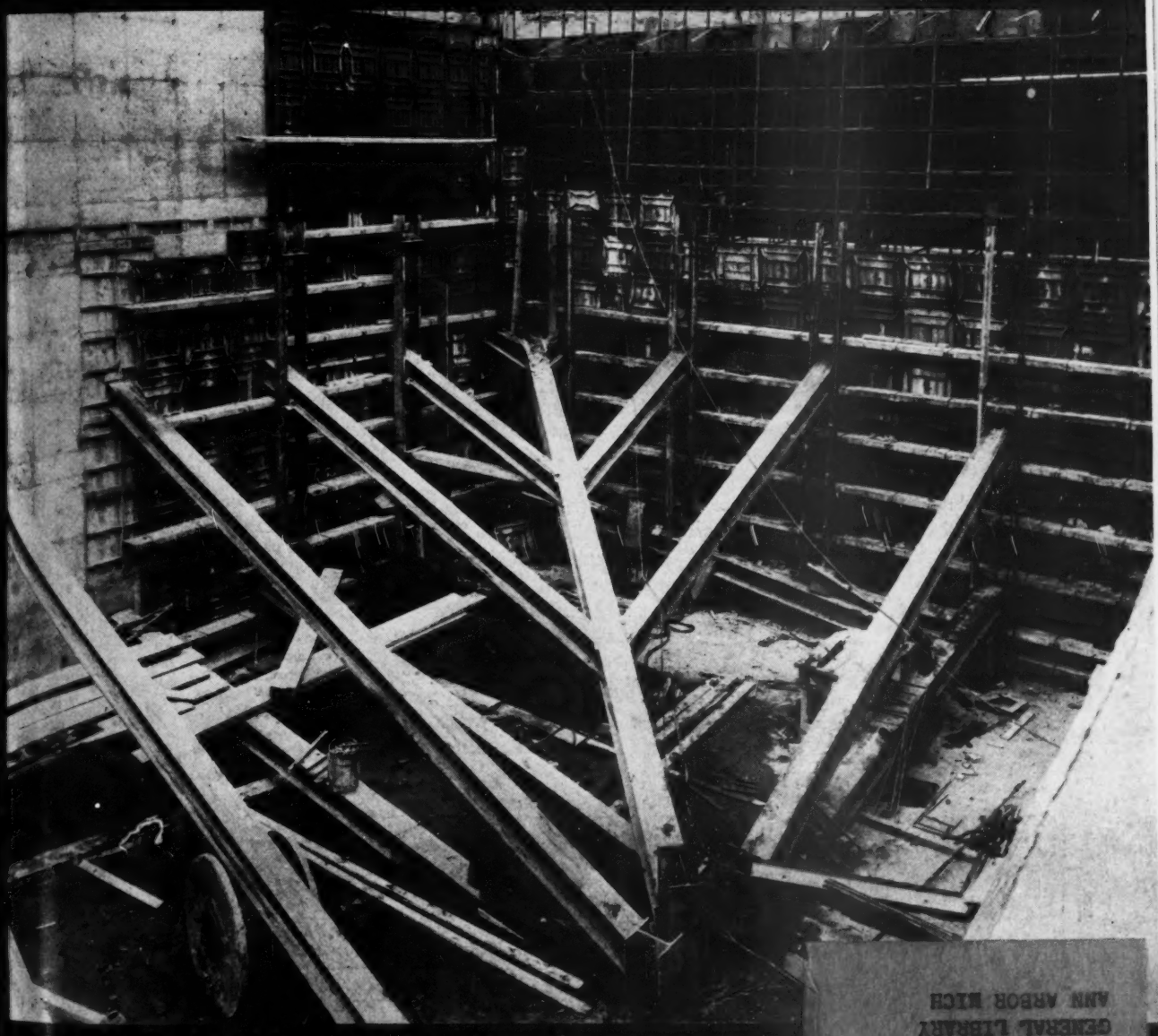
ENGINEERING NEWS-RECORD

A McGRAW-HILL PUBLICATION



acing holds bank and forms against pressure during construction

UNIV OF MICHIGAN
GENERAL LIBRARY
ANN ARBOR MICH

THIS SOLIDS PUMP Fights Wear!

ALLIS-CHALMERS NEW SOLIDS PUMP now used for

- Bauxite
- Dolomite
- Coal Slurry
- Chemical Pulps
- Sand and Gravel
- Iron Ore Tailings

Field reports prove *new design* and special *abrasion-resistant* alloys of these pumps give up to *four* times more service than comparable pumps.

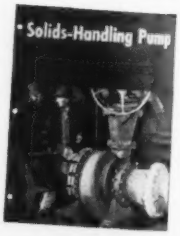
YES, the *records* of Allis-Chalmers Solids Pumps in the process, metal, coal, sand and gravel industries are real *proof* that they are giving remarkable performance from a standpoint of both *efficiency* and *handling capacity.*

A-C Solids Pumps have fewer total working parts than many other pumps. Only *five* principal parts . . . everything in this pump is quickly and easily accessible—a feature that cuts down-time as much as 80%!

And more—the simple design of these pumps means easier maintenance. The entire rotating element can be removed without disturbing the piping. The stuffing box and bearing adjusting nuts are quickly and easily serviced. In addition, you use *less* horsepower and get *smoother* operation than with comparable pumps!

Maybe A-C Solids Pumps can do a job for you! Ask your nearby office or dealer, or write direct. ALLIS-CHALMERS, MILWAUKEE 1, WIS.

A 2215



A-C Solids Pumps range from 100 to 7000 gpm . . . heads through 100 feet. Write for full information — Bulletin 08B6381A.

ALLIS-CHALMERS

One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products

1847 1947 A CENTURY OF SERVICE to Industry THAT MADE America Great

News of the Week

ENGINEERING NEWS-RECORD • APRIL 10, 1947 • VOLUME 138 • NUMBER 15

Shift construction controls to housing expediter office

Civilian Production Administration clears books of construction measures, kills seven limitations and material orders at President's direction

Preparing for its scheduled dissolution on June 1, the Civilian Production Administration last week transferred to the Office of the Housing Expediter virtually all of its controls over the construction industry.

The only construction control remaining in CPA hands is PR 16, which provides certain appeals procedure.

Expediter to take over

The CPA action was taken in response to a presidential order issued March 22 directing that all controls relating to the prosecution of the Veterans Emergency Housing Act be turned over to the expediter, together with such members of CPA's staff concerned with these controls as may be needed.

Transferred to the Housing Expediter are Veterans Housing Program Order 1 and all other orders and regulations supporting it. Included in these are provisions, heretofore administered by CPA, restricting construction, chanelling scarce building materials, and providing priorities and allocations assistance to producers of materials required by home builders.

Abolished outright by the transfer are seven limitations and materials (L and M) orders, four priorities regulations and several miscellaneous directions.

Many of the provisions of the regulations transferred have been inoperative for some time, CPA said, but they have been retained principally to assure their availability if needed.

Orders transferred

Among the important orders transferred are:

Priorities Regulation 1, which contains the basic CPA priority rules; Priorities Regulation 3, which contains general rules for application and extension of preference ratings; Priorities Regulations 5, 7, 7A, 8 and 22, which relate to rules for certification on purchase orders, transfers of quotas and preference ratings, deliveries of materials to Canada, and other matters; Priorities Regulation 33, which contains preference ratings for veterans' housing, and regulations to cover prefabricated housing, temporary re-use housing projects and house trailers; and Priorities Regulation 35, which provides rating assistance for Veterans Emergency Housing Program and Veterans Administration construction programs after March 31.

Also included is Veterans Housing Program Order 1, which contains general restrictions on construction and repairs.

All outstanding suspension orders, consent orders and stop-construction orders were also transferred.

Orders revoked include:

Directions 13 and 14 to PR 1, and Direction 14 to PR3, referring to ratings on iron and steel, controls on idle or excess inventory and use of ratings assigned by government agencies to contractors; Priorities Regulation 13, which covered special sales of restricted materials; Priorities Regulation 32, which established inventory controls; Order M-21, which established specifications for deliveries of iron and steel products, and Order M 293, which regulated placing and acceptance of orders and restricted production.

CPA officials pointed out that it will not be necessary for any person to file further reports under the orders revoked unless otherwise required, but that their revocation does not affect any liabilities previously incurred.

***Competition for Jefferson Memorial Announced** — A $125,000 design competition, open to architects, civil engineers and students in both fields, has been announced as a medium for obtaining the best design for a $30,000,000 memorial to Thomas Jefferson at St. Louis, Mo. An 82-acre site on the banks of the Mississippi River has been purchased and cleared by the federal government as location for the memorial, which is to commemorate the Louisiana purchase. Prize money has been contributed by St. Louis citizens, and the contest will be divided into a preliminary and final stage. Applications are available through George Howe, the Jefferson National Expansion Memorial Commission, 415 Market St., St. Louis 2, Mo.*

NEWS IN BRIEF

In telegraphic form, here are latest news developments on the engineering and construction front during the week.

Construction—Missouri will erect a new 200-bed tuberculosis hospital at *Mt. Vernon*, to cost $1,500,000. . . . The Monsanto Chemical Co. of *St. Louis, Mo.*, has started engineering plans on construction involving $50,000,000 for facilities for new products and has started its previously announced $22,000,000 construction program. . . . Jordan Marsh Co., *Boston, Mass.*, has plans for constructing a 14-story structure upon the store's present site, without disturbing business. . . Construction will start this summer on a $5,000,000 office building for the General Petroleum Co., at *Los Angeles, Calif.* It will be the city's largest, with gross floor space of 504,452 sq. ft. . . . Standard Oil Co. has called bids for first construction steps in a $5,000,000 grease manufacturing plant and packaging warehouse at its Richmond, Cailf., refinery. . . . A long-range school construction program to cost $1,000,000 will soon be under way at *Fort Dodge, Iowa.*

Highways—Gov. Mon Wallgren of *Washington* has signed a bill creating a 12-man legislative interim fact-finding committee to study highways administration, maintenance and construction . . . Construction of a $35,000,000 superhighway system through *Duval County, Fla.*, including two new bridges across the St. Johns River, was assured March 26 when the county commissioners approved the plans. . . . The West Virginia State Road Commission has called for bids April 15, for the substructure of a new bridge crossing the Bluestone River near *Hinton*, made necessary by construction of the Bluestone Dam. It will be 1,300 ft. long and will include four 150-ft. concrete piers and an abutment, to make it the highest bridge in West Virginia. . . . Paving costs are 11 percent higher this year than last, according to first bids received by *Syracuse, N. Y.* Syracuse Constructors Co., Inc., bid $69,290 for repaving James Street, or $5.35 per sq. yd. Last year the figure was $4.80 per sq. yd. Mayor Costello announced that projected resurfacing jobs would be reviewed in the light of rising costs and the cost factor will determine the extent of this year's paving program.

Housing—Construction has begun on a $1,000,000 Vaca Valley Village housing project in central *California.* Contractors James J. Smith and Samuel R. Geddes will build 107 medium-priced houses of basalite block, the first units being scheduled for occupancy in June. . . . The International Ladies' Garment Workers Union at *St. Louis, Mo.*, has a program for cooperative home construction for its members. With the funds provided by the union members, the co-operative will purchase a tract of land and arrange for architects and contrators to undertake the program. The co-operative will be independent of the union, but only members of the garment workers' organization will be permitted to participate.

To make Bradley Field an international airport

Members of the Aviation Committee of the Connecticut General Assembly have taken steps to develop Bradley Field, Windsor Locks, Conn., into an international airport. Initial expenditures will amount to $1,500,000 for an administration building and hangar facilities.

Bradley Field, used by the Army Air Force during the war for a training field, is said to be ideal for an international airfield. It has 1,600 acres at present with room for expansion. The State Aeronautics Commission has a budget at present of $2,500,000 from which all planned expenditures must initiate.

The location is central for a population of more than 1,000,000, and would be easily accessible for Springfield, Mass., and Hartford, Conn.

R. L. Hearn to manage Ontario Hydro work

R. L. Hearn has been appointed general manager and chief engineer of the Hydro Electric Power Commission of Ontario as a step in the re-organization of that body (*ENR* Feb. 6 vol. p. 185 and Feb. 20, vol. p. 256). Otto Holden is to be assistant manager in charge of engineering, and A. W. Manby assistant manager in charge of operation.

These appointments followed the submission of a report to the provincial government by the Toronto firm of industrial engineers, J. D. Woods and Gordon.

Mr. Hearn is one of the three chief engineers appointed in 1945. He has been in charge of all engineering design and construction. A graduate of the University of Toronto in civil engineering, he was one of the earliest members of the Hydro staff but resigned in 1921 to engage in water power engineering work on the Pacific Coast. He returned to the service of the Ontario Hydro, in 1944, as special assistant to T. H. Hogg, then chairman and chief engineer.

Otto Holden, also a graduate in civil engineering of the University of Toronto, has served continually with the Hydro having been chief hydraulic engineer since 1934.

Harmon Field to become permanent Army base

A $12,000,000 program to replace all temporary structures at Harmon Field, near Stephenville, Newfoundland, in order to convert the airbase to a permanent U. S. installation was announced by the New York District, Corps of Engineers, last week.

The war-built airbase, located one and one-half miles from Stephenville at the head of St. George's Bay is now a key base on the Army's transatlantic air routes, under the jurisdiction of the Atlantic Division, Air Transport Command. The field has three concrete runways, most of its buildings are of temporary nature.

Col. W. F. Heavey, New York district engineer, said the construction program will last about two years, in view of the fact that most materials and skilled supervisory workers must be brought in from the United States. Local labor will be utilized as much as possible.

Plans and specifications for the work are being prepared by Parsons, Brinckerhoff, Hogan and Macdonald, New York consulting engineers; and actual construction will be undertaken by a combination of three firms—the Metcalfe Construction Co., Gordon Hamilton Contracting Co. and the Kansas City Bridge Co.

ENGINEERING NEWS-RECORD. Published every Thursday. **Return postage guaranteed.** Vol. 138, No. 15. Price 35c per copy. Allow at least ten days for change of address. All communications about subscriptions should be addressed to the Director of Circulation, 99-129 N. Broadway, Albany 1, N. Y., or 330 W. 42nd Street, New York 18, N. Y. Subscriptions, United States and U. S. Possessions, $6.00 for one year, $9.00 for two years, $12.00 for three years. Canada $7.00 for one year, $11.00 for two years, $14.00 for three years. Latin American countries $10.00 for one year, $16.00 for two years, $20.00 for three years. All other countries, $20.00 for one year, $30.00 for two years, $40.00 for three years. Please indicate position and company connection on all subscription orders. Entered as second-class matter October 29, 1936, at the Post Office at Albany, N. Y., under the Act of March 3, 1879. Printed in the U.S.A. Cable Address: "McGraw-Hill New York." Member A.B.P. Member A.B.C. Copyright 1947 by McGraw-Hill Publishing Company, Inc. All rights reserved. James H. McGraw, Founder and Honorary Chairman; JAMES H. McGRAW, JR., President; CURTIS W. McGRAW, Senior Vice-President and Treasurer; JOSEPH A. GERARDI, Secretary; NELSON BOND, Director of Advertising; EUGENE DUFFIELD, Editorial Assistant to the President; and J. E. BLACKBURN, JR., Director of Circulation. **Publication office: 99-129 North Broadway, Albany 1, N. Y. Editorial and Executive Office: 330 West 42nd St., New York 18.** District Managers and Branch Offices: Fred G. Hudson and L. H. Hunt, 520 N. Michigan Ave., Chicago 11; 738-39 Oliver Building, Pittsburgh; J. W. Otterson, 68 Post St., San Francisco 4; Aldwych House London, W. C. 2, England; Washington; J. M. Spackman, New York; A. B. Cozens, Philadelphia; E. E. Duff, Jr., Cleveland; B. F. Horn, Detroit; W. E. Donnell, St. Louis; R. N. Phelan, Los Angeles; W. G. Payne, Boston; Ralph Maultsby, Atlanta, Ga.

U.S. courts show split on coverage of employees under labor statutes

Supreme Court's decision indicates differences of opinion—Agitation for higher pay continues throughout nation

Uncertainty as to employer liability under the Fair Labor Standards (Wage-Hour) Act is not limited to portal-to-portal pay, but also extends to the question of which employees are covered by the law and thus must be paid time and one-half after 40 hours a week and a minimum of 40 cents an hour.

A difference of opinion on this point among federal judges was disclosed last week in a decision of the U. S. Supreme Court over the law's applicability to three operating engineers in the power plant of General Industries Co., Elyria, Ohio. The Court split, 6 to 3, over the issue of whether the engineers were supervisors and, consequently, exempt from the law's requirements. By finding that the men were in fact supervisors, the Court's majority reversed an unanimous decision of a 3-judge Circuit Court of Appeals in Cincinnati, Ohio.

Chief Justice Vinson, in the majority opinion, said that "the nature of the operations was such that the immediate and continuous supervision of trained persons was indispensible, and there were concededly no other employees to give such supervision."

The minority opinion, in which Justices Rutledge, Black, and Murphy joined, contended that, although the work of the engineers was highly skilled and complicated, it did not involve exercise of discretion, nor did they have the power to hire or fire. Further, they argued, the evidence showed the firemen and coal-passers took orders only from the chief engineer.

Wage raises sought

While federal courts and Congress wrestled with matters of definition on existing and proposed legislation, unions and employers in the construction industry throughout the country continued activities last week.

Wage rate increases ranging up to 25 percent are being sought by Massachusetts building trades unions, and negotiations have been going on for some time between their representatives and the construction industry.

The principal negotiations have been between five major building trades councils and the building and marine divisions of the Associated General Contractors of America and the Building Trades Employers' Association of Boston. The union groups include carpenters, laborers, bricklayers, hoisting and portable equipment engineers and cement finishers. Numerous subcontractor employers' associations in the state are negotiating contracts with 17 other crafts, including painters, paperhangers, pile drivers, plasterers plumbers, roofers, sheet metal workers, steam fitters and stone cutters.

Among the demands being considered in Boston negotiations are those of the carpenters' group for a $2.12½ an hour rate; the bricklayers' union, which is asking $2.50 an hour; and the laborers, who ask $1.50.

Similar increases are being sought by the hoisting and portable engineers whose wage is $2.02½ an hour and cement finishers now paid $1.99½.

Other developments

Governor Osborn of Arizona on March 20 signed a measure which implements the "right to work" amendment to the state constitution which was approved by people at the last general election. However, labor union opponents of the law have already started preparations to test its constitutionality.

A request by the Technical Engineers' and Architects' Union that wages of Seattle, Wash., City Light employees performing engineering service in the construction of Ross Dam be increased to conform with those paid since Jan. 1 by private industry has been granted by the city council. Under the new scale, the project engineer's salary is increased from $700 to $740 a month; designing engineer, civil, $500 to $540; assistant designing engineer, civil, $365 to $420; draftsman, $280 to $320; junior draftsman, $240 to $265; resident engineer, civil, $600 to $640; assistant resident engineer, $525 to $565; office engineer, civil $345 to $480; senior inspector, $320 to $360; inspector, $280 to $320; assistant inspector, $240 to $265; senior transitman, $320 to $360; chainman or rodman, $240 to $265; computor, $280 to $320.

New York strikes end

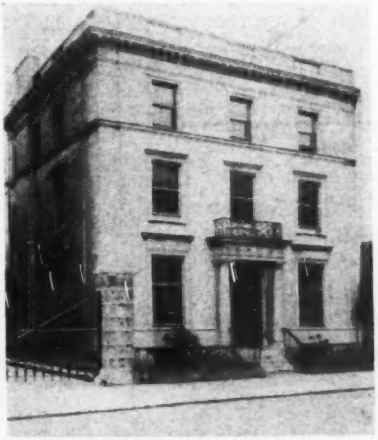
In New York City, 800 AFL lathers, who called a two-day strike in February that threatened to halt all construction in the city, won their demand for a seven-hour day and $2.30 per hour in an arbitration agreement award. The men had been earning $2.10 an hour for a seven hour day, and balked at an offer from employers of $2.50 per hour for an eight-hour day.

Also in New York City, a strike of some 1,000 sandhogs that had tied up work on the $84,000,000 Brooklyn-Battery Tunnel since March 20, was ended when the men agreed to return to work without obtaining any of their original demands. Union leaders were instructed, however, to open negotiations on grievances with contractors.

The General Contractors Association of Vancouver, Wash., has signed a contract with representatives of 22 building trade and allied unions granting wage increases of 20 cents an hour. Effective in Clark, Skamania and Klickitat counties, the scale gives common laborers $1.35, cement finishers $1.82½ and bricklayers $2.10 an hour.

At a recent meeting of the Associated General Contractors, of Ft. Worth, Tex., with members of the Carpenters Local No. 1822, a committee representing the AGC recommended that the contractors accept the proposed new wage scale which provides for an increase from $1.62½ an hour to $1.75 for journeymen and $1.81½ for power saw operators. If this recommendation is accepted the new scale will go into effect May 1.

Under terms of the new agreement in San Diego plasterers and lathers will receive time-and-a-half for work over six hours a day, with a 25 cent raise to $2.25 an hour May 1. Hodcarriers also will benefit by the six-hour day settlement, and receive a similar raise to $2.05.



***ASTM Headquarters** — Recently dedicated by society officers is this new headquarters building for the American Society for testing Materials, at Logan Square, Philadelphia, Pa. Purchase and enlargement of the building was accomplished with a $160,000 fund made up by the membership. The 4-story structure, next to the Academy of Natural Sciences, will provide improved working facilities for the society's 43-person staff, as well as space for meeting rooms, shipping and storage.*

DEVELOPMENTS BEYOND U. S. BORDERS

Digested from reports by Engineering News-Record correspondents and the McGraw-Hill World News Bureau

Complete baseball stadium for Havana—Close contracts for engineering on $150 million projects in Saudi Arabia—French build flattest keystone arch bridge—British survey great flood damage

Cuba—Meeting the needs of ever-growing enthusiasm for baseball in Cuba, a new 35,000-seat, concrete and steel stadium is now in operation in Havana.

The stand is built on a site on the outskirts of the capital city, where a small stream once ran across the land and where much of the soil was under water during rainy seasons. The reinforced concrete stand covers a projected horizontal area of about 120,000 sq.ft., resting on some 1,470 hardwood piles, and with several footings spanning sewer lines crossing the site. Ramps and exits are so arranged that a capacity crowd of 40,000 or more can be cleared from the stadium in 20 minutes.

Lighting for night games is provided by four towers located on the roof of the stand, and four others in the outfield. Between the main seating deck and the playing field level, a main concourse extends the entire length of the stand, providing access to offices, dressing rooms and toilet facilities. Other space under the stand is devoted to concessions and ticket offices.

Construction was completed in seven months from contract signing. All operations of engineering and construction were performed by the Cuban branch of the Frederick Snare Corp., under direction of W. C. Sechrist, chief engineer.

Oil and Railroads . . . .

Saudi Arabia—Vast construction projects—financed by both the Arabian government and by private interests—looking to the development of the country's oil resources and general communications, began to take from last week.

A group of five American engineering firms received a $150,000,000 contract for construction of the Saudi Arabian section of a pipeline to stretch about 671 miles from Dhahran on the Persian Gulf to the Mediterranean Sea, to be built by the Trans-Arabian Pipeline Co., a subsidiary of the American-Arabian Oil Co. The line is said to be the world's largest oil line, and will consist of steel pipe of about 31 in. in diameter, with a capacity of between 300,000 and 400,000 barrels per day.

The same combination of firms is already at work on projects aggregating some $50,000,000 (*ENR* Jan. 30, vol. p. 165) for modernization of many of Arabia's ancient cities. The five companies include Sverdrup and Parcel of St. Louis Mo.; the Bechtel Corp., San Francisco; Morrison-Knudsen, Boise, Idaho; H. C. Price of Bartlesville, Okla., and Robert Conyers, San Francisco. S. D. Bechtel, Mr. Sverdrup and other representatives of the companies recently returned to the United States after a series of conferences with King Ibn Saud on the proposed work.

At the same time, the Saudi Arabian legation at Washington, D. C., reported to the U. S. Department of State that a 10-year, $20,500,000 railroad construction program is "economically feasible". The proposed railway line would cover 333 miles, between the capital at Riyadh and the seaport city of Dammam, on the Persian Gulf.

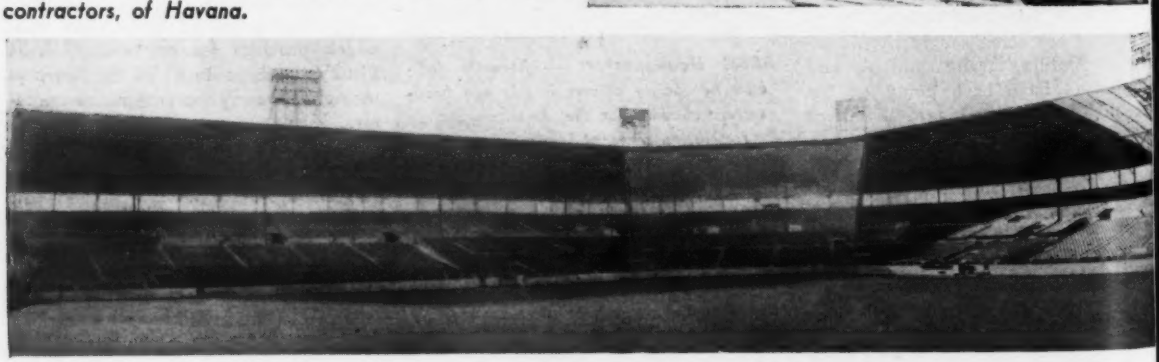
Floods . . . .

England—Thirty counties forming a huge square in east-central England last week surveyed damages expected to total more than $50,000,000 as the aftermath of one of the worst floods in the area's history.

The floods occurred in a roughly square sector whose corners are formed by the Cities of Salisbury, Norwich, York and Herford, and were caused by a spring thaw that followed closely on the heels of the heaviest and latest snows for many years. The effect of the thaw was aggravated by the rainiest March on record.

Great amounts of water released by

***Stadium for Havana**—Capable of seating 35,000 persons in its main grandstands, this concrete and steel baseball stadium is now open to the public at Havana, Cuba. Built in a little more than six months, the stadium stands on the outskirts of the city, part of the grandstand founded on piles driven into the bed of a small stream that formerly crossed the area. Owned and operated by a Cuban corporation—Compania Operadora de Stadiums—the structure was built by Frederick Snare Corp., contractors, of Havana.*



St. Louis Post-Dispatch photo

Pipeline Contract Result—*"Sheik" Lief J. (Jack) Sverdrup—and he may even be entitled to "Pasha" after his name—poses in the costume of an Arabian nobleman, presented to him by King Ibn Saud of Saudi Arabia. Former major general of Engineers, Sverdrup represented his consulting engineering firm of Sverdrup & Parcel in arranging for the construction of an $150,000,000 pipeline and other work in Arabia.*

these conditions forced the Rivers Ouse, Thames, Avon, Severn and Derwent and their tributaries to flood stages that reached or exceeded records set in 1852 and 1886, flooding roads, farmlands, and towns along the river banks. The town of Bath recorded 16 ft. of water in some streets.

Few major structures were destroyed, although what damage was done by heavy scouring has not been determined, and most of the damage was confined to rich and badly-needed farmlands. Bridges destroyed included one at Cavendish, over the Trent River, where three piers gave way, and another near Leominster, which was swept away by the River Arrow. Rail service was hindered by flooded tracks or slides.

British Army Engineers and other Army forces were called into service to supply drinking water in tank trucks, and food to communities cut off from normal supplies by the floods.

Cableway ....

Peru—Plans for a 10-mile long monocable aerial tramway paralleling the main ridge of the Andes Mountains have been completed for the Cerro de Pasco Copper Corp. by engineers for the John A. Roebling's Sons Co., of Trenton, N. J. Two Roebling engineers, William A. Reeve and Craig Meade, are in Peru to supervise erection of the line.

The tramway will be a continuous monocable, designed to carry copper ore with a capacity of 34½ tons per hour. Individual cars will carry about 1,000 lb. of ore. Stretching from the company's mine at Yauricocha along the top of the continental divide to a railhead at Chaucha, the tramway will be built in three sections and will include two suspension systems, one of which will cross a 4,000-ft. wide, 800-ft. deep mountain gorge. Another suspension section will be 2,500 ft. long. About 110,000 ft. of 1⅜-in. wire rope, and about 160 tons of bridge strand will be used on the job.

Bridges ....

France—The 354-ft. central arch of a highway bridge now under construction over the Rhone River at Vienne in southern France is believed to have the flattest curve at the center of any similar structure in the world, according to Edouard Beltremieux, bridge engineer for the Bridge Reconstruction Service of the Ministry of Public Works.

The steel centering used on the arch allows construction with no support in the river and consequently no interruption to river traffic, Mr. Beltremieux said.

The whole bridge consists of three arches in reinforced concrete, the two smaller ones being 85.5 and 153 ft. long respectively. The central arch comprises two halves, each 19.5 ft. wide, separated by a space 3 ft. wide which will be covered with thin blocks of reinforced concrete. This arrangement permits use of centering half as wide as the whole bridge deck. The centering can be shifted to support the second half when the first is complete.

The roadway is 30 ft. wide, with sidewalks six ft. wide on either side.

The arch was made unusually flat at the center—on a section of 207 ft. the rise is only 18 ft., and the radius of curve at the center reaches 657 ft.—and steep at the ends to give an especially wide clearance for river traffic.

The centering consists of a double steel arch, hinged at each end and in the middle, weighing 560 metric tons, including 72 tons of high-resistance steel bolts. Several jacks placed in keystone position between the two halves of the centering enabled builders to keep the level of the floor at practically constant heights. Four sighting boards were fixed on the arch to register any movement during construction.

Irrigation ....

Mexico—Construction of canals totalling 115 miles in length and calling for some 14,000,000 cu. yd. of excavation for the Lower San Juan Irrigation District has been virtually completed by Constructora Continental, S. A., a Mexican corporation owned by S. J. Groves and Sons Co., of Minneapolis, Minn., Bowen and McLaughlin of Phoenix, Ariz., and L. B. Clark of Memphis, Tenn.

The $2,800,000 job started three years ago. The main canal has a bottom width varying from 3 to 8 ft., and a depth of about 8 ft.; side slopes are 1½ to 1, being interrupted halfway up with a 4-ft. berm. Scrapers and draglines were used for the excavation.

The project, which will irrigate some 150,000 acres in Tamaulipas State, is between the San Juan and the Rio Grande, and opposite the Lower Rio Grande Valley of Texas. A storage dam to impound some 2,100,000 ac.ft. of water was completed some time ago.

***French Highway Bridge**—The 354-ft. central arch of this bridge over the Rhone River at Vienne, France, is said to have the flattest arch at the center of any similar structure—18 ft. rise on a 207 ft. length.*

Rhode Island, Indiana push pollution control

State legislatures in Rhode Island and in Indiana took steps forward in their programs for alleviating unsanitary conditions in state waterways through a number of bills passed by the bodies during recent sessions.

In Rhode Island, five anti-pollution bills were approved by the legislature which brings communities, now exempted, under the provisions of existing state anti-pollution laws; provides for the creation of a state commission to build and operate sewage treatment facilities serving the major portion of Blackstone Valley; permits prompt prosecution for the discharge of petroleum products into harbors or bays; allow local communities to assess sewer-use taxes; and authorize the state to enter into interstate compacts for the prevention of pollution of streams running through it.

The state has had a pollution control statute since 1920, but a recent comprehensive investigation presented to legislators showed serious problems in the Upper Narragansett Bay, Providence River, and tributary streams. Damage has been suffered by riparian owners, the shellfish industry and recreational interests.

In approving the state's right to enter compacts with other states for control, the Rhode Island Commission on Interstate Cooperation was directed to negotiate with the proper authorities of five other New England states to form a New England Interstate Water Pollution Control Commission—long under discussion. This commission, which will employ an engineer-secretary, will have as its main objective pollution abatement.

Indiana laws passed

The Indiana state legislature approved a series of seven measures affecting pollution and water resources of the state.

These measures include: Provision for establishment of conservancy districts for flood control, water conservation and sanitation, including taxation to finance projects; a bill giving the state full control over all lakes; a bill limiting pumping of water from the ground for air conditioning or cooling purposes and making it unlawful to lower level of lakes over 10 acres in area without specific approval and a measure which abolishes the Board of Public Works and Sanitation in Indianapolis and creates in its place a Board of Sanitary Commissioners and a Board of Public Works to oversee sanitation activities in Indianapolis and surrounding Marion County.

Contract is awarded for Baltimore water tunnel

Award of a $9,123,000 contract to Samuel R. Rosoff, Ltd., of New York, for construction of a 7-mile section of a tunnel to bring water to Baltimore, Md., from the upper Patapsco River has just been announced by the Board of Awards.

The tube will extend from the Montebello filtration plant to a point on the western boundary of the city. Shafts have been sunk for tunneling.

PERSPECTIVE . . . .

Stream Pollution Control

While Congress debates final action on some six measures now before it (*ENR*, Feb. 27, vol. p. 336) calling for federal control of stream pollution abatement, many state and interstate bodies have been steadily at work on the problem.

Scattered reports over the last year have not given a complete picture of the really vast amount of work initiated by those agencies, particularly during the last twelve months, when the restrictions of war-imposed necessities have eased sufficiently to permit aggressive action.

To date, 11 states have set up special commissions or boards to oversee pollution control activities, four have inaugurated vigorous programs under the supervision of their health boards, and most others now are prosecuting clearance programs through established health agencies.

In addition, five river-system agencies are in full operation. In all, these agencies have issued orders or made plans calling for some $2,000,000,000 of work on new disposal plants, sewage systems and other works affecting pollution control.

Although some of the states—notably Pennsylvania, West Virginia and Indiana—have been prosecuting stream-clearing programs for some years, many of the special agencies were established only in the last year. Similarly, many of the state health board orders for such work have been filed only during the last few months. There are reasons for this, of course. The most important is the serious interruption of the war years, when materials and money for such work were scarce, and when the patriotic duty of turning out materials for the U. S. war machine seemed far more important than stream clearance, and many abuses or omissions were overlooked.

Despite the introduction of the national-control bills in the Congress, many local and national groups of engineers and health officials directly concerned with this work have opposed federal control. Their contention is that the problem of pollution abatement—involving financing and engineering on all government levels up to the state, and cooperation (and occasionally very large expenditures) from industry—is so complex, and so tied to local economic and social conditions that federal control can only confuse the matter.

Additionally, they contend, if local agencies handle the work, local residents and local businessmen will cooperate more whole-heartedly to eliminate a condition with which they are thoroughly familiar.

The states that now have active commissions working in the field include: Indiana, Ohio, Pennsylvania, Virginia (State Water Control Board established 1946), Illinois, Tennessee (board created 1945), North Carolina (board created in 1945), Washington (commission created 1946), Louisiana (commission created 1946), West Virginia, which created its State Water Commission in 1929, and Michigan.

In Vermont, New Hampshire and New York, state legislatures recently appointed committees to investigate the problem of pollution control and bring in recommendations looking toward the formation of control commissions or boards.

Of the states where boards of health handle activities, California, Colorado and Oregon, and, very recently, Rhode Island, have been most active. But even Utah, Arizona and Nevada have been conducting studies of abatement procedures.

Major area-wide agencies in existence now include "Incodel"—embracing the areas of New York, New Jersey, Pennsylvania and Maryland watered by the Delaware River; the Interstate Commission on the Potomac River Basin; the Interstate Sanitation Commission of New York and New Jersey; the Allegheny County Sanitary Authority (Pittsburgh) Pa.; the Ohio River Basin, and the Merrimack River Joint Sewage Board, in Massachusetts.

States plan to increase road appropriations

Arizona's highway construction program for the fiscal year starting July 1 probably will exceed the $25,000,000 budget for the current year according to W. C. Lefebvre, state highway engineer.

The expected increase, explained Lefebvre, will come about through a carrying over of funds from the current budget. These funds were left untouched because of a three-months' moratorium on federal aid projects last year, resulting from the steel shortage. Lack of technical assistance also enhanced the slowdown.

Secondary roads in S. C.

J. Stanley Williamson, state highway commissioner of South Carolina, says that the demands for secondary roads in that state are so great that the commission has decided to spend a total of $18,000,000 during the next two fiscal years as against the former allocation of $12,000,000.

The commission was originally granted authority to spend $18,000,000 during a 3-year period for secondary road work.

Extensive consideration is being given in the Oklahoma legislature to the proposed establishment of a state turnpike authority for the construction of a toll super highway between Oklahoma City and Tulsa. (*ENR* Mar. 13, vol. p. 411). At the same time, opposition to the proposal is growing on the ground that the work has been "too hastily conceived."

N. Y. State lets contracts

New York State's highway system is undergoing alterations costing $57,643,189, Public Works Superintendent Charles H. Sells revealed March 25.

Since V-J Day, Mr. Sells said, the state has awarded 141 contracts for construction and rehabilitation of roads in almost every section. Throughout the war the system remained virtually unchanged. Contracts provide for widening, resurfacing, bridge building and replacement of pavements. Funds come from war-time surplus revenues earmarked for postwar reconstruction.

Maryland's 5-year program

The House of Delegates in Maryland has passed Governor Lane's 5-year highway program calling for a $100,000,000 bond issue backed by an increase in gasoline taxes. Also passed by the house was a companion bill for a toll bridge program, chiefly to provide for a $24,000,000 bridge structure over Chesapeake Bay.

Labor bureau statistics reports may be cut

Both the number and scope of Bureau of Labor statistics reports bearing on the building and construction industry will be reduced if Congress cuts the BLS 1948 appropriation as the House wants it to do.

The Senate can be expected to restore at least part of the 60 percent slash voted 343-39 by the House last week in cutting the BLS budget from $5,500,000 to $2,373,400.

BLS has indicated to users of its statistics what the proposed cut in budget would mean in terms of reduced services and is soliciting their reactions and may use them in appraising the program for the benefit of the Senate Appropriations Committee. For the building and construction industry, if the 60 percent cut sticks, BLS warns:

Special employment, payrolls, hours and earnings statistics will be ended.

National estimates on number of houses started and completed and construction costs will be continued, but area studies will be dropped.

Labor requirements studies to measure off-site employment effects of construction will be discontinued.

Construction volume estimates will be maintained on a minimum national basis only. This covers the value of urban residential and non-residential building and repair work started, and total dollar expenditures for all private and public construction, by type.

MAJOR MEETINGS

American Society of Civil Engineers, spring meeting, Westward Ho Hotel, Phoenix, Ariz., April 23-25.

National Rivers and Harbors Congress, 37th convention, U. S. Chamber of Commerce Bldg., Washington, D. C., May 2-3.

United States-Mexico Border Public Health Association, annual meeting, San Diego, Calif., May 6-8.

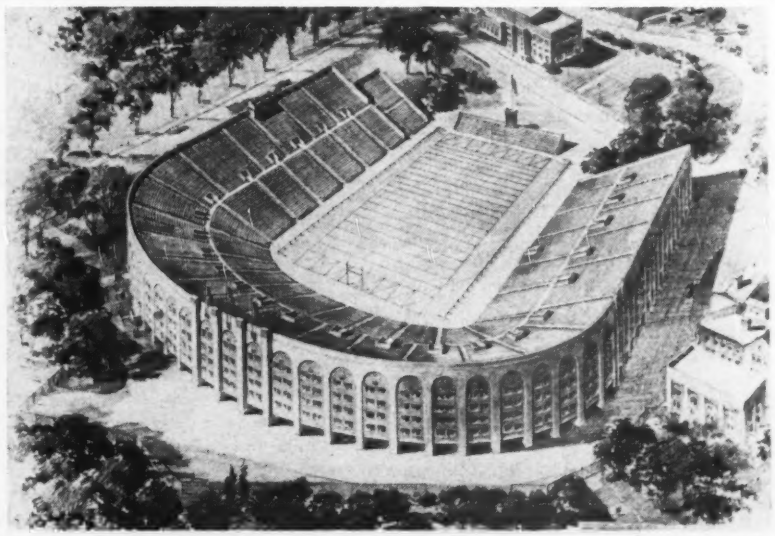
Society for Experimental Stress Analysis, annual meeting, Stevens Hotel, Chicago, Ill., May 15-17.

E. B. Debler to retire from Reclamation Bureau

E. B. Debler, 62, director of Region 7 of the Bureau of Reclamation, will retire this month after more than 30 years of government service. Avery A. Batson, assistant director of Region 7, which comprises Nebraska and large sections of Colorado, Kansas, and Wyoming, has been designated acting regional director.

Following his graduation from the University of Nebraska in 1907, Mr. Debler was employed by private engineering firms until 1915. He entered the federal service in 1915, and in 1918 joined the Bureau of Reclamation staff. In 1943, he became director of project planning for the bureau and on September 28, 1944, was appointed director of the newly established Region 7.

Mr. Batson has been in the federal service since 1934. He is also a graduate of the University of Nebraska.



***Housing in Stadium**—More than 20,000 persons may witness football games, and 500 students find living space in a stadium-dormitory planned for the University of Tennessee. The reinforced concrete structure, designed by Rentenback Engineering Co. of Knoxville, Tenn., would include 166 dormitory rooms, offices and locker rooms. The stadium would be 74 ft. high, 141 ft. wide at ground-level, and measure 745 ft. around the perimeter.*

HIGHLIGHTS OF MUNICIPAL DEVELOPMENTS

A summary of current activities in city engineering and construction

Street work, parking problems concern cities—Waco, Tex., rewrites zoning laws—Frederick, Md., considers new sewerage system—New York begins largest sewer line.

Repairs to streets, widening of main thoroughfares, and further attacks on the problem of congested downtown traffic seemed to lead municipal engineering activities last week.

Mt. Vernon, N. Y., a suburb of New York City, presented the most ambitious plan, when its officials began consideration of a proposal to "roof" over the New York, New Haven & Hartford Railroad cut through the center of the city and convert the space so created into a civic mall and bus terminal.

Drawn up on orders from Mayor William H. Hussey, the plan calls for a $2,125,000 project to cover the railroad cut for three blocks, widen adjacent streets, and construct two terminals for unloading of interurban buses that bring thousands of commuters to the railroad station. Survey for the plan was made by the Knappen Engineering Co., of New York City.

Phoenix, Ariz., announced plans for widening two leading thoroughfares—North Central Avenue and East McDowell St., during the next year; and Buffalo N. Y., ordered an early start on repair and reconstruction of its South Park Avenue Viaduct over tracks of the New York Central Railroad. Dyersburg, Tenn., appropriated $150,000 for street repair work; and voters of Memphis, Tenn., approved a $3,300,000 bond issue to finance street repairs.

Parking activities

In the matter of solving parking problems in business areas, St. Paul, Minn., found its plan for installation of 1,270 parking meters blocked by the state Supreme Court, which ordered cancellation of a contract for the machines on the ground that the contract was illegally awarded.

Stressing that there was no suggestion of a fraud, the court nevertheless held that the city had failed to observe bidding requirements, and issued an injunction forbidding the city and the Dual Parking Meter Co., of Canton, Ohio, from entering the contract—which called for an expenditure of about $80,000. A citizen's suit charged that bids were changed after they were opened. Some of the meters had already been installed. City officials acted quickly to remedy the situation by asking new bids for April 8.

Meanwhile, the Syracuse, N. Y., City Planning Commission issued a report calling for "an immediate program of coordinated downtown parking facilities", estimated to cost more than $2,500,000; and at Oklahoma City, Okla., City Manager William Gill, Jr., began investigations of city operation of parking lots and garages, after the governor signed a bill authorizing such action.

Under terms of the state measure, the city may issue bonds for construction or acquisition of a parking station, revenues from the operation going to retirement of the bonds.

Sewerage for Frederick

A $140,000 construction program for improvement and enlargement of the sewage treatment facilities of Frederick, Md., has been recommended to city officials by Whitman, Requardt and Associates of Baltimore, Md.—employed as consultant to make a study of Frederick's disposal problems.

Upon receipt of the report, the city requested permission from the Maryland legislature for authority to issue $150,000 in bonds to make the necessary improvements. The proposal is not only to improve the existing facilities by addition of better mechanical equipment, but to provide secondary treatment by constructing a trickling filter.

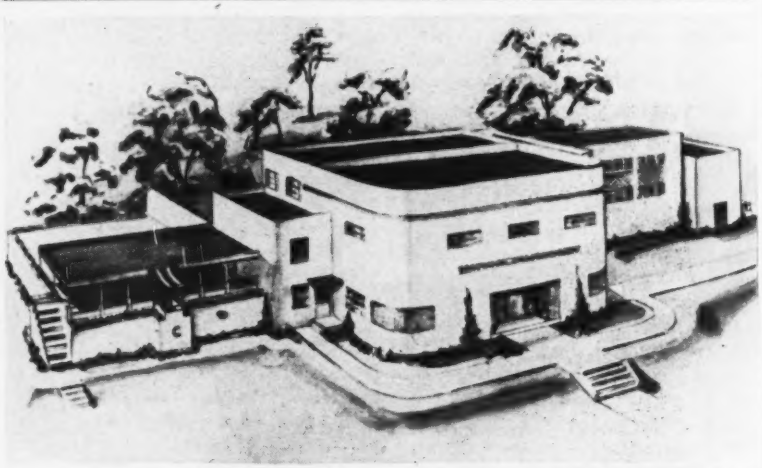
Rewrite zoning law

Waco, Tex., city fathers, in the midst of rewriting the city's zoning laws, have been advised by the Waco Insurance Exchange that the city is in immediate danger of having its fire insurance key rate of 15 cents increased because of the present inadequate code.

Officials promised that as soon as rezoning is completed, they will turn their attention to a new building code.

Vote to buy bridge

The Warren County, Miss., board of supervisors has voted to acquire the Vicksburg bridge across the Mississippi River, and to issue bridge revenue bonds not to exceed $7,000,000.



***Waterworks Planned in Park**—A departure from tradition, dictated by a desire for maximum utilization of existing mains, is planned at Columbia, Miss., where a new waterworks plant will be erected in a city park, adjacent to an existing swimming pool. Monolithic concrete will be used to bring the building into harmony with a nearby high-school structure, and a canopied roof slab will be placed over the clear-well reservoir, for use as a bandstand or speaker's platform. The plant will have a capacity of 1.5 mgd. William E. Mallett and Associates of Jackson, Miss., are engineers for the city.*

The bonds will be payable solely from tolls or other revenues derived from use of the bridge, on which the county holds an option. It is anticipated that the bridge will be toll free within 10 years.

Biggest sewer for N. Y.

Construction of what is said to be the largest storm sewer in the world began last week in suburban Queens, New York City, where city officials turned the first earth on the $7,000,000 Corridor storm sewer project.

The huge concrete barrel sewer trunk lines will drain some 6,300 acres of land in the northeastern end of the borough, to aid in reclamation of swampy areas for home construction.

Three trunk lines, each 16.6 ft. in diameter, will be laid parallel to each other over a distance of about four miles. Charles A. Vachris Inc., Dehan Construction Co., and Tully and DiNapoli, all of New York City, are contractors on various sections of the line.

While New York City went ahead with this project, many other cities reported advancement of plans for sewer and water-supply projects.

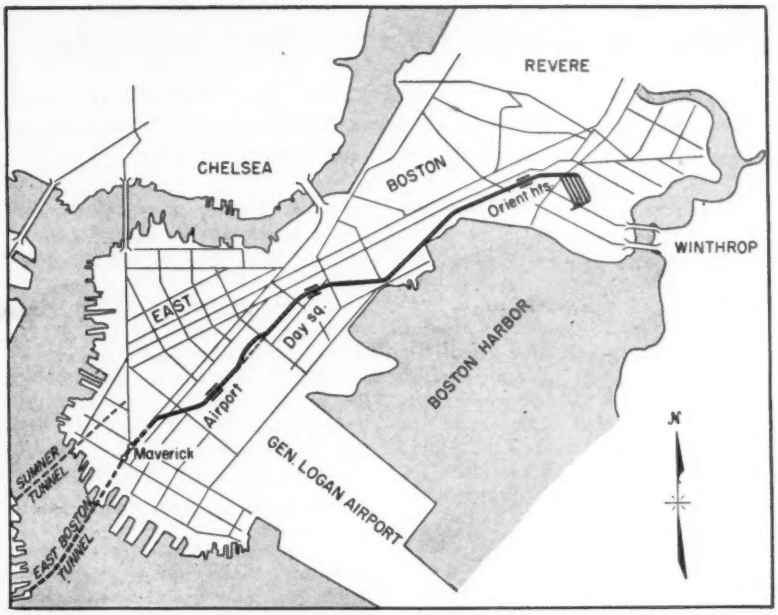
At Greensboro, N. C., voters approved issuance of $2,895,000 in bonds to finance a $1,025,000 extension of water mains, and $245,000 of work on the sanitary sewer system, among other work.

Natchez, Miss., commissioned Black and Veatch, Kansas City, Mo., to draw plans and specifications for a proposed $190,000 sewerage and water improvement program; the Houston, Tex., city council approved payment of $15,000 to consulting engineers for a sanitary sewer survey that resulted in recommendations for a $4,000,000 improvement project for the city; and Phoenix, Ariz., will open bids April 28 for construction of a 22 mg. reservoir to be built in Papago Park.

Zoning for U. N.

An interm zoning plan for the protection of the site of the United Nations headquarters on Manhattan Island, New York City (*ENR* Dec. 19, 1946, vol. p. 825) was approved by the city's Planning Commission last week.

The complex resolution sets up protective zoning in a 25-block area to set up a restricted belt completely surrounding the site. Streets facing the U. N. site are zoned for local retail business, and blocks immediately north and south of the site are to be limited to residential use on any new construction. Heavy industry, junkyards and manufacturing plants that now dot the restricted zone will be restricted henceforth in an effort to make buildings in the area conform to the character of the structures being planned to house the organization.



Subway Extension Approved—*The Massachusetts Department of Public Utilities recently approved plans of the Boston Transit Department to extend its elevated and surface tracks 2.1 miles in East Boston, to provide rapid transit service to the new Logan International Airport and to Orient Heights. Estimated cost of the extension, with three new stations, is $7,000,000.*

Water supply plans

Expansion of water supply facilities for New Britain, Conn., was recommended last week in a report submitted to the city by Metcalfe and Eddy, Boston consulting engineers. Included in expansion work would be two new wells at Patton Brook, a new 5-mile pipeline and other work, the total cost to be about $782,000.

At Hialeah, Fla., city councilmen and the state Board of Health announced approval of a water expansion program (*ENR* March 6, vol. p. 356), and councilmen considered a $700,000 bond issue to finance the work.

Plans for the project—which includes about 17 miles of mains, 32 miles of small-sized laterals, a pumping station and other features—were prepared by the Knappen Engineering Co., of New York City. Work is to start by June 1.

Floodway through streets

The flood control committee of Orleans, Ind., is preparing to submit to Army Engineers a proposal to construct a "street floodway" through the community as a means of eliminating frequent inundations of residential and business blocks of the community.

The plan calls for paving and grading Third Street through the town to carry surface flood waters to an open channel connecting with Lost River, 10 miles away. The community's floods originate from Old Sulphur Creek, which normally flows into a sinkhole at the northern edge of town, and then often floods the streets when the sinkhole fills.

Skyscraper for Toronto

Contract for what is believed will be the largest banking building in Canada has been awarded by the Bank of Nova Scotia to the Montreal contracting firm of J. L. E. Price and Co. Ltd.

The structure is to be a 25-story office building, located at a corner site in downtown Toronto, Ont. Construction will start as soon as demolition of old buildings on the site has been completed.

Office buildings of this height are unusual for Canada but at this particular site, local shale rock will be available for foundation purposes at a depth of about 30 ft. below street level. The new building will be near the 440-ft. high office building of the Canadian Bank of Commerce, a structure also founded on rock, and up to this time the tallest building ever to be constructed by private capital in the British Commonwealth.

Random Lines *from an editor's notebook.*

. . . In which ENR's western editor reports developments at a meeting of contractors called by Army Engineers prior to advertising for bids on the Chain of Rocks Canal, Mississippi River.

To eliminate or reduce as far as possible uncertainties which might bother bidders on the Chain of Rocks (Mississippi River) locks project, now ready to be advertised, Col. R. E. Smyser, Jr., district engineer, Corps of Engineers, last week called together in St. Louis a group of representative contractors to ask their advice and suggestions. With staff engineers of the St. Louis District and of the Upper Mississippi Valley Division, which designed the locks, the group visited the site on Monday, March 24, and on the following day met in the district office for discussion of the forthcoming proposal. Cogent suggestions were offered during this discussion to assist the engineers in drafting final provisions relating to bidding and construction.

Because the opinions and advice of the contractors were regarded as essential to obtaining firm bids at the best possible prices, the district engineer sandwiched the conference into a tight schedule which proposes to complete the award and issue notice to proceed with the work by the end of the fiscal year, June 30.

Fast action—following receipt on Feb. 28 of authorization to award the project this year—made it possible for the district office to mail descriptive brochures and sets of some 75 typical drawings (out of a total of about 450) to contractors invited to the conference.

Large and expensive lock

No estimate of the cost of the project was offered by the Army but figures up to $15 million were mentioned by some contractors. The project comprises a main lock 1,200 ft. long by 110 ft. wide (the largest on the Mississippi) and an auxiliary lock 600x110 ft. Overall length of the lock structure is 1,732 ft., and the total length of the contract is about 3,400 ft. Located in Cabaret Chute in Illinois, on the line of a proposed 8.4-mile canal to bypass the Chain of Rocks reach, the site is open to access by water through a 9-ft. approach channel about one mile long already, dredged upstream from the Mississippi.

Lock walls, mostly 92 ft. high and 40 to 51 ft. wide, are to be founded on limestone. Lower gates of the locks are miter type, weighing 200 tons per leaf in the main lock. Upper gates for both locks will be double-leaf vertical lift units with weights of 270 and 170 tons for the two leaves in each lock. The contract calls for 2,500,000 cu. yd. of excavation, and placing of nearly 400,000 cu. yd. of concrete.

Construction will take 3½ to 4 years. A continuing contract is proposed for the project. At present, $2,000,000 is available for initiating the work, and an additional appropriation is expected for the 1947 fiscal year starting July 1, to be followed by others for succeeding fiscal years.

Inspection precedes conference

A drenching, biting storm of rain, sleet and hail, which reached its height during the visit to the site, caused many of the party to postpone their inspection and remain under cover on the comfortable Army Engineer workboat Del Commune, but a large number braved the storm on an open barge to travel to the muddy area where the locks will be built. Fair weather greeted the group on the following day, when the contractors convened in Colonel Smyser's office with Col. Clark Kittrell, division engineer, and the district and division staffs.

Frank opinions by the contractors answered some of the questions on the agenda for the meeting and helped with constructive suggestions on others, including several brought out after the previously prepared list had been fully explored. The first question involved a proposed period of 30 days for advertising. Doubt was expressed by some contractors that steel fabricators could quote firm prices within 30 days for the large tonnage of structural steel required. It was recommended that the district engineer query the fabricators to determine whether they would make quotations in 30 days before deciding finally upon the length of the advertising period.

The district engineer declared his willingness to lengthen the period to as much as 45 days, although the extension would cut seriously into a schedule which contemplates definite obligation of available funds by June 30.

Regarding the contract time allowed for construction, the contractors were in general agreement that it should be 1,100 days for completion of sufficient work to permit lock operation and 1,300 days for final completion, plus extensions granted under the contract. These time allowances exceed by 200 days the periods proposed.

By June 30, 1949, the contractors estimated, 50 percent of the total project cost would have been expended for work performed. Under a continuing contract, reliance must be placed on Congress to make annual appropriations to cover each year's expenditures.

Cofferdam and excavation

No specification is proposed as to the type or location of the cofferdam. Excavated material, consisting largely of fine sand, is to be placed in levees on both sides of the locks, and these levees can serve to protect two flanks of the job. Some suggestions were made that the Army Engineers indicate the types of cofferdam which would be acceptable, but the majority view was that the choice of cofferdam should be left

Hardy representatives of contracting firms and division and district offices, Corps of Engineers, brave driving sleet storm propelled by 40-mile gale to inspect site of Chain-of-Rocks locks in Illinois, across Mississippi from St. Louis, on March 24.

entirely to discretion of the contractor.

On a proposal for payment in case of flooding by overtopping of the prescribed height of cofferdam, Colonel Smyser expressed willingness to increase the payment as a means of reducing the contractor's risk and thus lowering the overall cost, if desired.

With regard to the approach channel dredging, being completed last week by the Army Engineers, the contractors suggested that the canal be excavated full width at the lower end of the lock contract to provide a turning basin.

Cement and aggregate

Taking a vote on whether cement should be supplied by the government, Colonel Smyser found that a large majority of the contractors preferred to do their own buying, thus keeping deliveries completely under their control.

Contractors also want to buy their own aggregates. A request was made that the Army Engineers furnish a list of quarries from which acceptable aggregate could be obtained. The meeting ran into difficulty in calling for specifications which would give in full the test requirements for aggregates, as the Army Engineers standard concrete specifications are not written that way.

Discussion of aggregates brought out the suggestion that the maximum size be limited to 3 in., eliminating the 6-in. size tentatively proposed. On a lock project, it was contended, the smaller size would save money by eliminating extra material handling and changing of mixes. The 3-in. size also would permit use of four-compartment batch plants and accurate batching by standard equipment.

An original proposal for a concrete plant with a capacity of 1,200 cu.yd. in 8 hr. was regarded as excessive. The contractors suggested 600 cu.yd. in 8 hr. as ample for two-shift operation.

As to a limit on height of concrete lifts, a maximum of 20 ft. was agreed upon in view of the 120-hr. interval between successive pours, as required at present by Corps of Engineers standard specifications.

Air-entrained concrete is to be used throughout. The preference of the contractors was for cement containing the air-entraining agent interground at the mill.

Clarification was asked on a proposed requirement that absorptive form lining to be used on certain concrete surfaces where its use, according to the contractors, seemed to add unnecessary expense.

It was expected that the locks project would be advertised by the district engineer at St. Louis before these notes appear in print. . . *V. B. S.*

Philippine rehabilitation under way

The large construction program required as part of the rehabilitation of the Philippines is rapidly getting under way. In a few days bids will be opened for the first project for rebuilding the highway system of the islands. This will account for a large part of the program. Work is also starting on several other phases of the large rebuilding job.

About $128,000,000 of construction financed with U. S. funds is being planned for the next 4 to 5 years. Of this amount, $40,000,000 will be spent on highway improvements under supervision of the Philippine Bureau of Public Works with the U. S. Public Roads Administration cooperating as on regular federal-aid projects. A plan has been approved to give American contractors equal rating with the local contractors.

Some time ago F. C. Turner went to the islands as division engineer for the PRA to assist the Philippine government in setting up the necessary staff to do the roadbuilding job. During the last few days he has been back in Washington getting final approval on a plan that calls for the award of $10,000,000 this fiscal year and some $15,000,000 yearly for work during the next two years.

He announced that the work is being broken up into small contracts and during the next few months work will be advertised on a lump-sum basis at the rate of about $1,000,000 monthly. The Philippine government will be able to rent considerable machinery to the successful bidders from the surplus equipment turned over to that government at the end of the war.

Contractors wanting information about the work should write Mr. Turner at APO 736, San Francisco, Calif. Limited information will also be available from the Washington, D. C., office of the Public Roads Administration.

$18,000,000 for harbors

Under supervision of the Corps of Engineers, U. S. Army, about $18,000,000 will be spent to restore the harbors of the Philippines. Some time ago the Army Engineers awarded a cost-plus-fixed-fee contract for this job to the American firm known as Drake-Utah-Grove, which is a combination of the Johnson, Drake & Piper Co., the Utah Construction Co., and Grove, Shepherd, Wilson & Kruge.

Not so well advanced is the $57,000,000 task of restoring the public buildings of the Philippines. The War Damage Commission of the islands is in charge of this work.

A $5,000,000 sanitation program has also been started by the U. S. Public Health Service. Much of this expenditure will be for construction, for which the first awards should soon be announced.

An additional expenditure of $8,000,000 by the U. S. for improvement of the airport and air navigation facilities of the islands is expected. This work will be carried out under supervision of the CAA and plans are rapidly being prepared.

Pressure Control—*Bracing to driven piles, stiffened by concrete floor slab at center of structure, holds exterior earth, against bank pressure while excavation is completed for the John Hancock Insurance Co. building in Boston, Mass. The same bracing later was used to support a single wall form for placing concrete against the sheeted excavation, as shown on the cover picture. Turner Construction Co., of New York City, is contractor.*

MEN AND JOBS

Paul F. Keim, principal engineer with the Federal Power Commission in Washington, D.C., has gone to Liberia, West Africa, as consulting engineer for the U. S. government-sponsored Liberian Economic Mission. During the war Keim spent five years in the Civil Engineer Corps of the Navy, being on Midway Island as officer in charge of construction at the time of Pearl Harbor. He is a civil engineer graduate of the University of California, and holds his master's degree from the University of Nebraska. Before the war he was on the faculty at Nebraska, leaving to join the Federal Power Commission.

Daniel J. Brumley, retired chief engineer, Chicago Terminal Improvements, Illinois Central RR, was awarded honorary membership in the American Railway Engineering Association at the association's annual meeting in Chicago in March. Mr. Brumley was president of the organization in 1927 and in more recent years devoted much of his time to revision of the AREA Manual.

Clair A. Shaler, since 1938 associated with Finkbeiner, Pettis & Strout, Toledo, Ohio, consulting engineers, has been promoted to associate engineer. He was graduated from Michigan State College in 1936 and is secretary-treasurer of the Toledo section, American Society of Civil Engineers.

Three new division engineers have been appointed by Ohio Highway Director Murray D. Shaer. **E. R. McCullough** was named in Division 11, with offices at New Philadelphia in charge of Tuscarawas, Holmes, Carroll, Columbia, Harrisson, Jefferson, and Belmont counties. **Charles A. Ferguson** was named in Division 10, with headquarters in Marietta, covering Washington, Noble, Morgan, Monroe, Athens, Megis, Gallia, Vinton, and Hocking counties. Both McCullough and Ferguson are returning to positions they held from 1939 to 1944. **Elmer S. Barrett** was named in Division 9, comprising Ross, Pike, Scioto Jackson, Lawrence, Highland, Brown, and Adams counties.

Frederic H. Neely, New Haven, Conn., town planning engineer at Greenwich, Conn., since 1945, has resigned. He has served in municipal planning posts in Buffalo, N. Y., and Providence, R. I.

Richard King, general manager of the Port Alberni Construction Co. engaged in a prefabricated housing project at Port Alberni, B. C., was supervisor of the construction of the Royal York Hotel, also the College Street store of the T. Eaton Co. Ltd. in Toronto, Ont. Mr. King was graduated from Massachhusetts Institute of Technology with honors in civil engineering. During the war he was supervisor on the construction of the second phase of the Ajax shell-filling plant at Pickering, Ont., the largest shell-filling plant in the dominion.

John P. Mills has been employed by the Peoria, Ill., park board as an engineer, following his resignation as civil engineer with the bureau of county roads and city streets, Illinois Division of Highways, Peoria. For 25 years, Mills has been an employee of the division.

The retirement, effective March 31, of **H. D. Comstock,** as regional director, Region VI, Bureau of Reclamation, Billings, Mont., has been announced. **Assistant Regional Director Kenneth F. Vernon** was named to succeed Mr. Comstock as regional director. Commissioner of Reclamation Michael W. Straus said that he accepted Mr. Comstock's request for retirement after more than 41 years of service in western reclamation on the condition that upon retirement Mr. Comstock make his services available in a consultant capacity.

C. L. Willis, Jr., East Texas district Civil Aeronautics Administration airport engineer at Austin, has been made the fourth region Civil Aeronautics Administration head of the airports branch's planning division at the CAA headquarters at Fort Worth. Willis is succeeded as East Texas district CAA airport engineer at Austin by **F. J. Schnitzer.**

Kenneth K. King has resigned as director of public works at Kansas City, Mo., to become general manager of the C. S. Foreman Co., a heavy construction concern of that city.

Joe P. Burris, recently lieutenant colonel in the Corps of Engineers, has become associated with Bates & Rogers Construction Corp., Chicago, Ill., and is in power plant construction at Lansing, Iowa. Mr. Burris went to Iran early in the war as superintendent of

New and retiring officers of the Association of State Highway Officials of the North Atlantic States meet at the dais during a recent convention at Atlantic City, N. J. Left to right: W. T. Ballard, chief engineer, Maryland road commission, vice-president; W. B. McKendrick, assistant chief engineer, Delaware Highway Department, president; H. C. Whitehurst, director of highways, District of Columbia, retiring president, and Lee Grover, secretary-treasurer of the group.

construction for Foley Bros., and Spencer, White & Prentis, on the construction of docks, railroads and highways. In September, 1942, he received a commission in the Corps of Engineers, serving with the Persian Gulf Command in developing the American ports and transportation arteries there.

F. H. Simpson is now engineer of maintenance of way in charge of roadway and structures, N.Y. Central System. With headquarters in the LaSalle Street station, Chicago, he will have jurisdiction over all lines of the system west of Buffalo. Previously he was assistant chief engineer.

J. E. Nielsen has been appointed assistant engineer of buildings of the Chicago, Burlington & Quincy RR with headquarters at Chicago, Ill., in place of **A. H. Simon,** promoted.

J. L. Horner, city waterworks superintendent at Henderson, Tex., for 20 years, has been made city manager of Pittsburg, Tex. Horner has served as president of the Texas Waterworks Association. He has been associated in the past with the Dallas municipal engineering department and served seven years as assistant superintendent of the Tyler, Tex., waterworks.

John L. Sadowski, an engineer in the sanitation section of the health division, Department of Public Welfare, St. Louis, Mo., has been appointed chief of the newly-organized rat control section of the division.

Rex R. Reid, field representative in the Washington, D. C., office to the Bureau of Reclamation for the last year, has transferred to Amarillo, Tex. In his new location he is regional planning engineer for Region 5 of the bureau.

John D. Spinks, Winston-Salem, N. C., civil engineer, is supervising a survey for a new source for the municipal water supply at Winston-Salem to overcome present shortages which might become acute.

H. Wesley Clark, city engineer of Niagara Falls, N. Y., will retire on April 14. He has served the city for 31 years, and has been city engineer since 1931. He is a graduate of the University of Wisconsin school of engineering. He will devote his time to his work as president of the United Hotels Co. of America, Inc. and the United Office Building.

C. O. Mannes, former King County engineer at Seattle, Wash., has joined the Seattle engineering firm of DeWitt C. Griffin & Associates in the civil engineering field.

Richard M. Smith has been appointed assistant King County engineer at Seattle, Wash., **Grover C. Gaier,** who formerly held the post, was named district engineer. **Alfred E. Pierce** was named right-of-way engineer and **Floyd Turnbull** flood control engineer.

Ralph E. Wendt who joined the engineering department of Jacksonville, Fla., in 1902, has retired as assistant city engineer.

Arthur Chard has been appointed county engineer for Traverse County, Minn., with headquarters at Wheaton. He succeeds **Helmer Hansen,** who has been employed by the state highway department.

Carl R. Griffith has been appointed personnel supervisor of the Ohio Highway Department, Columbus, succeeding Delbert H. Glaser.

Lennon Selby, structural engineer, has been employed by Oklahoma City, Okla., to write a new building code for the city.

Ray Hall, for 22 years an employee of the Lucas County, Ohio, sanitary engineer's office, Toledo, has been named sanitary engineer to succeed his former chief, **Samuel C. McKee,** who has become county engineer.

Recently retired after 28 years of service with the Corps of Engineers, Col. Harry A. Montgomery is now vice-president and chief engineer for Material Service Corp., Chicago, Ill. At his retirement, Col. Montgomery was chief engineer, American Forces Western Pacific.

F. C. Shons (left) superintendent of bridge construction for Hunkin-Conkey Const. Co. and Shafner, Gordon and Hinman, contractors on 16 miles of railroad relocation at Conemaugh damsite in Pennsylvania, poses with D. D. Rait, resident engineer on the work for the Corps of Engineers.

Certificates for 25 years of service with the Georgia Highway Department recently were presented to this group. Seated, left to right: A. W. Evans, C. N. Crocker, Mildred P. Cantrell, R. A. Flynt and W. H. Jackson. Middle row: R. N. Maddoz, R. R. Martin, R. W. McCrum, J. T. Newton and F. A. Nichols. Rear row: R. P. Norris, W. W. Phillips, C. Pope, L. W. Verner, B. P. McWhorter and J. T. Marshall.

ENGINEERING SCHOOL NEWS

Summer hydraulics laboratory in Colorado—New entrance requirements at Iowa—Urban planning at Rutgers

Plans are now being made for the second summer season of the Rocky Mountain Hydraulic Laboratory (*ENR* Dec. 6, 1945, vol. p. 756) near Allenspark, Colo.

Students of hydraulics and members of the hydraulics sections or divisions of the American Society of Civil Engineers and of other engineering groups are invited to join in the research and educational activities of the laboratory, which is under the direction of a board of trustees headed by Gerard H. Matthes, New York City consulting engineer.

During the first season a small group of "pioneers" opened up an access road, built a bridge, prospected for and found sand deposits large enough to take care of the laboratory's needs for construction and experimental work, and built a small shop building. All members of the group, which included Mr. Matthes, Prof. C. J. Posey of the State University of Iowa, Prof. Ralph W. Powell of the Ohio State University, Prof. Henri J. Putnam of the Laval University, Quebec, Lyman Flook of the U. S. Bureau of Reclamation, and Prof. John H. Dawson of the University of Colorado, expect to return for at least part of the coming season to carry on the program started last summer.

The organization owns a 20-acre site near the Rocky Mountain National Park, including a quarter-mile reach of North St. Vrain Creek. In addition to research projects to be conducted at the laboratory, inspection trips to nearby engineering projects and technical meetings with visiting engineers are planned.

Those who wish to participate in the laboratory's program, or who would like to use its facilities for research on a particular project, should communicate with Prof. R. W. Powell, Ohio State University, Columbus 10, Ohio, or Prof. C. J. Posey, State University of Iowa, Iowa City, Iowa.

Scientific urban planning, a field in which there has been greatly increased activity since the end of the war, will be assisted by Rutgers University through the establishment in the college of engineering of a 4-year curriculum in city and regional planning, Robert C. Clothier, president of the university has announced. The new curriculum, to be instituted next fall will lead to a bachelor of science degree in city and regional planning and will be an expansion of the planning instruction which Edward B. Wilkens, professor of planning, is giving this year to students enrolled as engineering or liberal arts majors.

The college of engineering at the University of Iowa has announced that after June 1, 1947, entering freshmen in engineering must present credits in college algebra, trigonometry, English composition, speech and inorganic chemistry. Dean Francis M. Dawson of the college points out that the new requirements will in most cases require at least one semester of work in a junior college or college of liberal arts.

If enough University of Illinois engineering graduates would accept employment with the State Division of Highways, the problem of delays in the Illinois roadbuilding program might be solved, according to E. R. Knight, assistant engineer of design in the State Division Office, Springfield. Prof. J. J. Delano, of the department of civil engineering, reports that the university's engineering experiment station has under way eight research projects to air road construction and maintenance, including earth pressure against walls, abutments and culverts; concrete slab investigation; pumping of pavements; design of mixes for air-entraining cement; impact on bridges; welded structures; highway signs; and superhighway drainage.

Henry J. Miles has resigned as associate professor of civil engineering at the University of Southern California to become professor of hydraulics at the A. and M. College of Texas. He is a graduate of Brooklyn Polytechnic and Rutgers University.

Funds for a new building to house the school of engineering at Gonzaga University, Spokane, Wash., have been increased to $233,500 with the receipt of a check for $50,000 from Bing Crosby, alumnus of the school. Crosby had donated $75,000 last fall. A large amount of equipment already has been purchased, according to the Rev. Francis E. Corkery, S. J., president of the university. "Thirty-seven percent of the university enrollment is composed of engineering students," said Father Corkery. J. G. McGivern is dean of the school. The proposed building will be 209x90-ft., with a 3-story main section and 2-story wings. It will include drafting rooms, physics laboratories and specialized laboratories for material testing, hydraulics, and sanitary engineering.

***Playground for San Diego**—San Diego, Calif., will have a $15,000,000 playground in Mission Bay when a project now under way is completed. In foreground, dredge is working on creation of Santa Clara and Carmel points, and to right are Ventura and Gleason points, recently completed. Total dredging on the two jobs involves 1,850,000 cu.yd. A third contract calls for dredging an additional 830,000 cu.yd. to fill in Sunset Point to form the southeastern approach to main bridge linking Ocean Beach and Mission Beach. Contractors on the first two jobs are Franks Dredging Co. and Newport Dredging Co., and the Newport Co. has recently been awarded the contract for the Sunset Point dredging work.*

Medicine ampul plant is windowless, dust proof

Placed in operation March 20 at Rensselaer, N. Y., a four-story, windowless, germ- and dust-proof plant for the preparation of injectible medicines in ampuls is believed to be one of the most complex controlled-conditions structures ever built.

The air-conditioned, reinforced concrete structure, built for the Winthrop Chemical Co., has an insulated exterior wall of face brick, glass block panels with shade screens on three sides, and limestone trim. The glass block panels are set flush with the glazed-tile interior walls. All partitions are of insulated enamel steel with double glazing. To maintain cleanliness at all times, ledges were avoided, and special non-flaking plaster, glass inclosed flush-type fluorescent fixtures, linoleum flooring and special "de-dusting" equipment are incorporated.

On entering, employees and visitors must pass through one of two narrow passages lined with double "de-dusting" blower and suction units, designed to remove lint and dust from clothing.

Each of the 35 laboratory compartments is zoned to permit maintenance of the climate best suited to the preparation in process of manufacture there. The refrigerant used is freon gas.

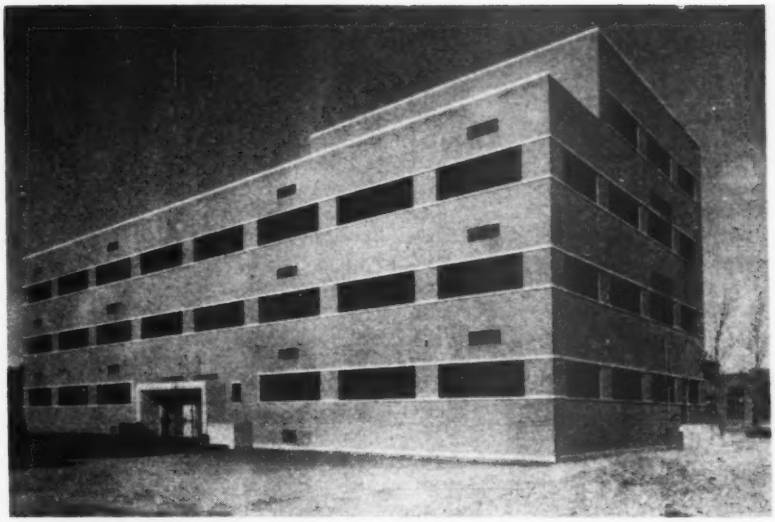
Fresh air is taken into the conditioning system through louvered openings and throwaway-type filters at either end of the building, passed through electrical dust precipitators and purified by radiation from germicidal lamps. Used air is exhausted through louvres in the front and rear walls.

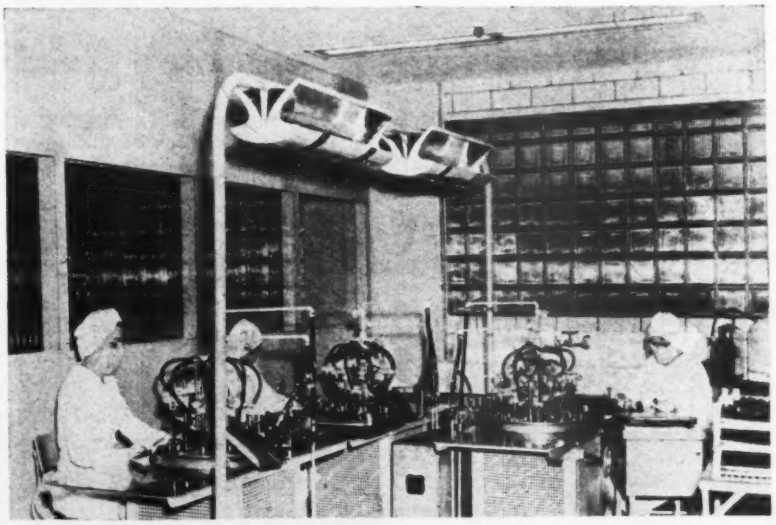
Climate controlled in zones

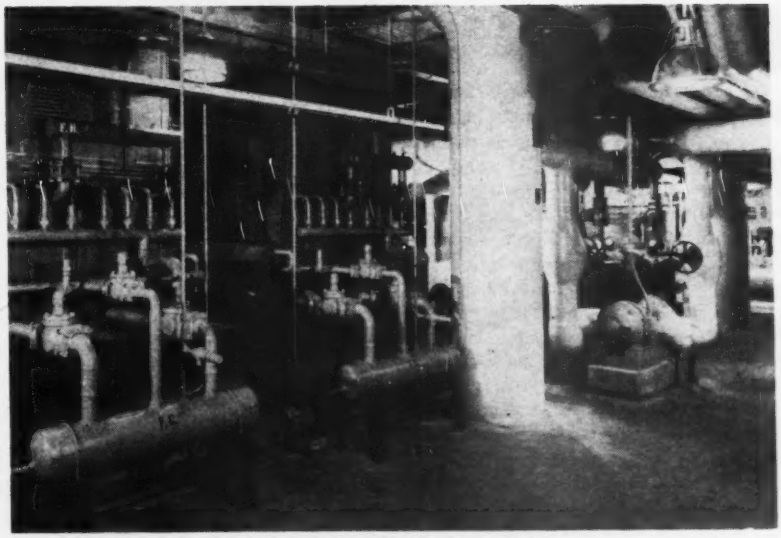
Except in the basement, duct work is concealed between the floors and the suspended ceilings. The returning air system for each floor is open type, utilizing corridors and stainless-steel floor grilles.

The three upper "working floors" are the scene of the manufacture of some 250 different medical preparations, made in quantities numbering into the millions of units per month. Bulk solutions are prepared in a laboratory on the second floor, and on the second floor also are six "filling rooms" where the vials are packed. The fourth floor contains a cafeteria, the control room for the air conditioning equipment, and two 300-gal. tanks which provide water by gravity flow to the air-conditioning system. In the basement, besides locker rooms for employees, the main air conditioning control center is located.

The plant was built by the Austin Co., Cleveland, Ohio.







(Top) Pharmaceutical plant of Winthrop Chemical Co. at Rensselaer, N. Y., has brick and glass block exterior. (Center) Ampuls are made in rooms with special facilities, such as air conditioning and sterilizing lamps. (Bottom) Refrigerating compressors and air washers are located in the basement. The structural frame is reinforced concrete.

Large new power plant to be built in Oklahoma

A new electric power plant of approximately 150,000 kw. capacity will be constructed by the Oklahoma Gas & Electric Co., Oklahoma City about 10 miles west of the city, at an estimated cost in excess of $9,000,000, according to George Ade Davis, president of the company.

The proposed plant is to be located on a 160-acre site on the west bank of the North Canadian River. The new plant will be erected in three units, with work scheduled to start on the first unit about September 1, at an estimated cost, including the 50,000 kw. turbo-generator, of approximately $6,000,000. The other two units will not be constructed until a later date.

Sir J. W. Gibson dies, built Mulberry harbors

Sir John Watson Gibson, bridge and dam engineer who was responsible for the construction of the prefabricated Mulberry harbors that facilitated the Anglo-American invasion of Europe, died in London recently at the age of 61 years.

Sir John undertook the construction of the harbors at the request of the British War Cabinet, despite the seeming impossibility of getting enough concrete, steel, men and facilities.

Earlier Sir John built the Sennar Dam across the Nile River and the Gebel Aulia Dam across the White Nile. His works in England include the King George Dock at Hull and the Queen Mary Reservoir at Staines, Middlesex.

Cape Fear River dredging to be started soon

A $1,000,000 project involving the dredging of a 32-ft. channel with a one-foot overdraft in the Cape Fear River near Wilmington, N. C., is scheduled to get under way in April or May, according to the Wilmington District, Corps of Engineers. The channel will be widened to 400 ft.

The project will require about a year to complete with over 5,000,000 cu. yd. of material to be removed. If Congress appropriates the necessary funds, several turning basins, and a cutoff channel between the river and the inland waterway will be built, and the river channel from Lilliput to the ocean will be widened and deepened next year according to present plans.

Steam pipes keep steep road clear of snow and ice

A successful example of the hot water pipe method of clearing roads of snow is located at the top of Snake Hill in Belmont, Mass., a suburb of Boston.

Two 1½-in. dia. wrought iron pipes were laid on each wheel track of the road, and a new black top surface, about 5 in. thick was placed over them for about 750 ft. Heat is furnished by an oil heater in a small building halfway up the hill.

After storms, wheel tracks are clear of ice and snow so that cars can negotiate the steep, crooked, hill road without tire chains. The water, at a temperature of 140 deg. is pumped through the pipes, returning to the boiler to be reheated, and the cost is estimated at $20 a year for each householder benefited. A thin coating of ice forms from melting snow at some spots and the road has to be sanded at times. But as a whole, drivers look upon the experiment as a success. The idea is that of Massachusetts Institute of Technology professors and other residents of the neighborhood.

A resident in nearby Winchester has put pipes in his 75-ft. long and 12-ft. wide driveway. They are in 10 lengths about 8 in. apart on pea stone gravel. At each end they tie into 2½ in. dia. pipes. All are welded together to prevent leakage. Over the pipes, partly covered with the pea stone gravel, was laid 3½ in. of concrete. An oil heater in the house furnished the heat. The drive slopes toward the garage where a cistern takes care of the melted snow water. When snow accumulates on a pan on a pivot the electric switch is tripped and the system starts working. It takes about two hours to clear the entire driveway of snow. The system cost about $1,100. Lead sheathed electric cable can be used in the same way. The power required is the equivalent of one 40-watt bulb for every square foot of driveway.

***Piped Hot Water Clears Snow**—Residents on a hilltop near Boston, Mass., have solved the problem of keeping the steep approach to their homes clear of ice and snow by pumping hot water through 1½-in. pipes laid close to the surface of the road. Shown here are Snake Hill, the pipes leading from the roadside oil heater, and the auto tracks cleared of snow.*

ing

the
th a
Fear
ched-
May,
trict,
will

ut a
0,000
d. If
essary
nd a
r and
t, and
to the
pened
plans.

ivalent
square

r Boston,
heir homes
laid close
ading from

RECORD